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ABSTRACT

Improved computer technology presents philosophers with the means to enhance their applied ethics classes by providing the opportunity to explore myriad practical and conceptual problems heretofore impossible in the traditional classroom. This paper examines some of the potential and problems inherent in using computerized techniques in Southeast Missouri State University's Environmental Ethics class. The course syllabus and justification for inclusion in the university's interdisciplinary studies program are presented. Asynchronous teaching and learning techniques are discussed, and the use of an interactive policy simulation, called "Balance of the Planet," is described. It is concluded that, when a full battery of interactive and synchronous techniques is combined into a traditionally Socratic environment, the essentially dialectic nature of the humanities is preserved, while simultaneously incorporating powerful new teaching and learning styles which are vital in applied ethics. (MES)

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ED 430 528

The High-Tech Humanist: Multimedia Computing in a Senior Applied Ethics Seminar

William J. McKinney

- Abstract
- Introduction
- The Class
- Asynchronous Techniques
- Off-the-Shelf Multimedia
- Authorware and Beyond
- Conclusions

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Abstract

Improved computer technology presents philosophers with the means to enhance their applied ethics classes by providing the opportunity to explore myriad practical and conceptual problems heretofore impossible in the traditional classroom. This paper examines some of the potential, and some of the problems, inherent in using computerized techniques in Southeast Missouri State University's Environmental Ethics class. It concludes that when a full battery of interactive and asynchronous techniques is combined into a traditionally Socratic environment that the essentially dialectic nature of the humanities is preserved, while simultaneously incorporating powerful new teaching and learning styles which are vital in applied ethics.

1.0 Introduction

Environmental Ethics is that strangest of philosophical disciplines. On the one hand, it is steeped in traditional ethical theory. No course is complete without its requisite nod to the "big names" in Western ethical theory. In a Kantian mode, we ask, "What is our obligation with respect to the non-human natural world?" and, in a more modern vein, do non-humans have rights in any coherent sense, that is, do we have obligations to them, and them to us? For that matter, we may ask if future generations, both human and non-, deserve moral consideration. Do our future great-grandchildren have some sort of moral claim on us right now? Of course, we can also ask, in a more utilitarian sense, if the consequences of action X are more or less beneficial, and whether or not animals and forests count in the grand scheme of moral calculation. Many questions in environmental ethics are, however, of a less traditional, but nonetheless theoretical, ilk. Are the fundamental assumptions of modernism inherently anti-ecological? Are women socialized to be more ecologically friendly than men?

While these, and surely many, many more, theoretical questions form the foundation of environmental ethics and philosophy, they are surely not the end of the matter, for as an applied ethical discipline,

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environmental ethics must also ask questions such as, "Is it wrong to burn the rainforests, and if so, why?", "If a company obeys all environmental regulations, is it then, by default, `doing the right thing'?" and, ultimately, "How should I conduct myself in the context of the broader environment?"

The challenge which faces environmental ethics instructors is precisely how to make such a class accessible to a wide range of students, while simultaneously maintaining both theoretical rigor and practical relevance. No longer can humanities instructors be content to simply offer courses for their majors and the handful of other interested students. External pressures demanding programmatic accountability dictate that departments regularly demonstrate their centrality to institutional mission and core curricula. Applied ethics classes are natural draws for philosophy departments, in that they offer the opportunity to explore foundational theory, while offering content that is timely and relevant, a sure attraction to students caught up in the new "consumer culture" that is contemporary higher education. I maintain that computer-assisted techniques offer a means of preserving what is most central to the humanities -- the Socratic method, while simultaneously providing a means of extending its reach into the vocationalized culture of contemporary academe. There are myriad applications for computer-assisted instructional techniques in the humanities. The traditional dialectical approach of the humanities may be preserved, even enhanced by such techniques. The technology-enhanced nature of my environmental ethics class stands as one example.

2.0 The class: UI429 "Environmental Ethics"

It is important to remember that technologically assisted instructional techniques must be driven by the objectives of the course or course unit. Too often, instructors get caught up in the "bells and whistles" and "whiz-bangs" of the available technology and, as a result, forget that there is good, basic course material that may not be enhanced by the presence of computer-assisted techniques. Thus, when I first had the idea of incorporate multimedia approaches into environmental ethics, I took a long hard look at precisely what I promised would be accomplished in the class. Below is the course approval documentation required of all upper-level interdisciplinary courses at Southeast Missouri State University.

PROPOSED COURSE SYLLABUS
UNIVERSITY STUDIES PROGRAM
Southeast Missouri State University

Department: Philosophy and Religion
Title of course: Environmental Ethics

I. Catalog Description of and Credit Hours of Course: Comprehensive study of the ethical, social, scientific and cultural problems associated with the use and abuse of natural resources. Three (3) credit hours.

II. Interdisciplinary Nature of Course: In analyzing the ethical problems of environmental issues, this course will draw on material from the categories of:

Logical Systems: statistical, inductive and deductive reasoning used by scientists, engineers, ethicists and activists in constructing arguments defining and addressing environmental problems

Physical and Living Systems: analysis of case studies detailing environmental problems from the standpoint of environmental science and ecology

Social, Economic and Political Systems: environmental problems are, in general, social problems, and consequently, economic and political problems, and those environmental problems brought about by human intervention in nature are usually the result of social, political, economic and/or cultural forces

Literary Expression: from the Bible to Silent Spring, the non-human environment has always been the subject of literary interpretation; since these interpretations are a part of our culture, they must be examined in tandem with the scientific and ethical issues

The broad base of this course meets the interdisciplinary course requirement, and thus the course should receive a 400-level designation.

III. Prerequisites: Completion of the University Studies Core Curriculum

IV. Purposes or Objectives of the Course:

1. To understand the basics of ethical theory, and how these can be applied to environmental problems. (Objectives: 2, 7)

2. To familiarize the student with the basic motivations underlying the development of the sub-discipline of environmental ethics. (Objectives: 2, 4, 7, 8)

3. To investigate the various models proposed to account for ethical behavior within an ecological context. (Objectives: 1, 2, 6, 7, 8, 9)

4. To allow the student the opportunity to explore various multi-cultural perspectives on environmental issues. (Objectives: 1, 2, 4, 5, 9)

5. To investigate the scientific and technical details of the ecological problems which give rise to environmental ethics disputes. (Objectives: 1, 2, 6, 9)

6. To encourage scholarly research on, and analysis of, the issues and problems addressed in the course. (Objectives: 1, 2, 3, 7)

V. Expectations of Students:

1. To attend class regularly.

2. To be prepared to participate in class discussions based on sets of homework questions.

3. To be prepared to hand in the answer to one homework question per week.

4. To read the assigned texts and articles.

5. To complete preliminary independent research culminating in a proposal for a final position paper.

6. To complete the mid-term and final exams (take home).

7. To undertake an independent research project, of appropriate scholarly quality, culminating in a position paper taking a position, pro or con, on one of several environmental issues.

8. To present a summary of the position paper for class round table discussion.

VI. Course Outline

Unit I: Primer in Ethical Theory

Week 1: Introduction, Ethical Relativism, Egoism
Week 2: Utilitarianism, Altruism, Kant and Rawls

Unit II: Primer in Environmental Ethics

Week 3: Historical Roots of Environmental Ethics
Week 4: Contemporary Catalyst: Ecological Problems of the 1970's

Unit III: The Science of Ecology and the Ethics of Interconnection

Week 5: The Science of Ecology
Week 6: Environmental Ethics in an Interconnected World
Week 7: Environmental Problems in an Interconnected World -- to include a selection from the following case studies:

Global Warming
Food and Water Quality and Quantity
Ozone Depletion
Rain Forest Degradation
Acid Precipitation

Unit IV: Readings in Environmental Ethics

Week 8: The Rights of Future Generations
Week 9: Models and Scientific Method in Environmental Ethics
Week 10: Cost-Benefit Ratios: Examining Benefit and Harm in Environmental Ethics
Week 11: The Ethics of Industrial and Population Growth on a Global Scale

Unit V: New Frontiers in Environmental Ethics

Week 12: European and North American Perspectives
Week 13: Latin American, African and Middle Eastern Perspectives
Week 14: Asian Perspectives and the Growth of Eco-Feminism
Week 15: Position Paper Presentations

Text Books and Assignments:

Upstream/Downstream (Temple Univ. Press, 1990), Chapters 1-8

Ethics of Environment and Development (Univ. of Arizona Press, 1990), Chapters 1-21

One Earth, One Future (National Academy of Sciences, 1990), Chapters 1-7, 8-11

Handouts and select reserve readings, including:

Feinberg, J. Reason and Responsibility (Wadsworth Publishing Company, 1989) pp. 462-573
Grove, R. "Origins of Western Environmentalism," Scientific American, July 1992, pp. 42-47.
White, L. "The Historical Roots of Our Ecologic Crisis," in Mitcham, C. and Mackey, R., eds., Philosophy and Technology (New York: The Free Press, 1969) pp. 259-265.
Zimmerman, O.T. and Lavine, I. DDT: Killer of Killers (Dover: Industrial Research Service, 1946).
Carson, R. Silent Spring (Fawcett, 1962), select chapters.

VII. Basis of Student Evaluation

Participation in class discussion and completion of weekly homework: 25%
Mid term take home exam: 25%
Environmental Position Paper and Proposal: 25%
Final Exam: 25%

VIII. Justification for inclusion in University Studies Program:

1. Demonstrate the ability to locate and gather information

Emphasis: Considerable

Course Content: This objective is addressed tangentially by the course content inasmuch as the location and identification of relevant evidence and data is essential to environmental science, as is the determination of what, precisely, "relevant data" means.

Teaching Strategies: Lectures and class discussions will be used to help to identify potential sources of information for the student position papers and paper proposal assignments.

Student Assignments: Class assignments -- the position paper, paper proposal and presentation, as well as homework/discussion questions -- will require the student to gather information to support their argume.nts from a variety of sources, both in and outside, of their required class reading. For example, in a class discussion on the problems of trans-border pollution (e.g. acid precipitation), the student may wish to look to studies sponsored by the governments of the United States and Canada, as well as those funded by American coal interests and utilities, in order to gain an appreciation of the difficulty in gathering authoritative ecological data, and thus an understanding of the problems of developing environmental ethical norms.

Student Evaluations: Evaluation of the quality of class discussion,,position paper and presentation, will in part be based upon the identification, and use, of quality scholarly sources from a variety of disciplines.

2. Demonstrate capabilities for critical thinking, reasoning and analyzing

Emphasis: Significant

Course Content: This objective is addressed specifically in the course content. The discipline of environmental ethics is concerned with the critical analysis of environmental problems, and the development of normative standards for proper actions within the environment. As such, the students will be using all manner of reasoning skills, from the deductive structure of arguments in their class presentations and position papers, to analysis of deductive, inductive and probabilistic methods used in ethical arguments, scientific arguments (such as risk assessment) and the arguments of their peers in class discussions.

Teaching Strategies: Weekly class discussions, initiated by sets of homework questions, will encourage the student to examine ecological problems and their proposed ethical and technological solutions, in a critical manner. It will be the stated purpose of such discussions to engage the entire class in a lively dialectic, which it is hoped will carry through into the lectures. Such activities will foster the development of sound argumentative techniques, from the construction and criticism of arguments, to the proper uses of supporting evidence.

Student Assignments: Class assignments -- the position paper, paper proposal and presentation, as well as homework/discussion questions -- will require the student to analyze and critique a variety of arguments, ethical as well as scientific, put forth by the assigned authors, the instructor and, most importantly, their peers. Such a Socratic approach of argument and counter-argument will only reinforce the practical value of meta-level studies such as ethics.

Student Evaluations: Evaluation of the quality of class discussion,,position paper and presentation, will based primarily upon the structure and quality of the reasoning employed in the construction of arguments and criticisms.

3. Demonstrate effective communication skills

Emphasis: Significant

Course Content: The communication between various groups involved in environmental disputes will be addressed tangentially insofar as the course content is concerned.

Teaching Strategies: Effective communication is essential in arguing for or against certain ethical norms. One of the main purposes of class discussion in this class is the development of effective verbal and written communication skills. Students will be evaluated, in part, based upon how effectively they communicate their arguments in class discussion, on the exams, and in the assigned position paper.

Student Assignments: Students will be encouraged, and ultimately expected, to communicate their ideas in a clear and concise fashion. It is for this reason that the position paper assignment contains a mandatory proposal assignment. The proposal will force the student to present preliminary arguments for the value of their particular project and the feasibility of their position on the issue (e.g., Thesis: Acid precipitation should be eliminated because of our ethical responsibility to the wildlife in affected areas.). In this way, they can begin to hone their communication skills early in the semester, learn from constructive criticism, and present a more clear and concise argument by semester's end in the actual position paper and class presentation. In addition, weekly class discussions will present a regular opportunity to practice the art of effective communication of complex ideas in a short time period. Such a process forces the student to focus on relevant specifics, the most difficult of all scholarly research skills.

Student Evaluations: Clarity and precision will be evaluated and amount to a significant fraction grades on all student assignments, written and oral.

4. Demonstrate an understanding of human experiences and the ability to relate them to the present

Emphasis: Significant

Course Content: One of the primary goals of this course is to put forth the argument that an understanding of the ethical problems which arise and have arisen with human intervention in the non-human environment is essential to understanding our role as residents of the planet earth as human beings, and as part of a larger, interconnected, ecosystem. Environmental problems have a long history, yet environmental ethics is a relatively new discipline. This course will attempt to find out why this is the case. Finally, the anthropocentrism which is often noted as a significant factor in environmental problems, particularly in the West, has a long history of its own, and thus ethical norms which seek to regulate human behavior in the environment must look to the social, cultural and intellectual history of this, and other related concepts.

Teaching Strategies: The lectures and discussions will stress philosophical concepts, augmented with the historical context which surrounds past and present environmental problems. The discipline of environmental ethics arose in a particular context, and this course will be sensitive to that context.

Student Assignments: Class assignments -- the position paper, paper proposal and presentation, as well as homework/discussion questions -- will require the student to gather information to support their arguments from a variety of sources, many of which will no doubt be historical in nature. Environmental problems develop through time, and a consciousness of the ethical issues which surround these problems develops in that same milieu.

Student Evaluations: Clearly, any evaluation of student work must take into account the student's sensitivity to historical issues

5. Demonstrate an understanding of various cultures and their interrelationships

Emphasis: Significant

Course Content: Questions of environmental ethics arise in an understanding of the interconnected

nature of cultures. More than one third of this course is devoted to an understanding of how different cultures view their relationship with, and their place in, the environment, and how that world view affects their determination of good and bad behavior in, and toward, the environment. This world view is affected by a variety of factors, including religion, economic structure, geography, and as some would argue, gender and race. No class in environmental ethics is complete without a thorough examination of these matters.

Teaching Strategies: In addition to the lectures, weekly class discussions will be used to allow the students to engage in role playing situations, encountering ethical dilemmas in the environment from a variety of perspectives. For example, the issue of rain forest depletion looks very different from the perspective of a millionaire rock star seeking to ban the farming of deforested lands, and that of a Brazilian farmer trying to support a family on that very soil. Such strategies are extremely effective in getting the student to realize the effect of "world view" on the formation of philosophical, and in this class, ethical, norms.

Student Assignments: Class assignments -- the position paper, paper proposal and presentation, as well as homework/discussion questions -- will be expected to show a critical sensitivity to cross- cultural issues. By "critical" I mean an evaluation of the cross-cultural implications of various ethical norms, not because it is often deemed to be fashionable, but because these implications must, as all other implications of ethical norms, be examined in the light of the critical reflection and scrutiny of any student of applied ethics. Pandering to intellectual fashion should not be tolerated, nor should elitist chauvinism of any kind.

Student Evaluations: Evaluation of the quality of class discussion, position paper and presentation, will based partially upon the cross-cultural implications of the assignment only insofar as there are cross-cultural implications.

6. Demonstrate the ability to integrate the breadth and diversity of knowledge and experience

Emphasis: Significant

Course Content: By its very nature, environmental ethics is an interdisciplinary study. In order to formulate standards of ethical behavior in the environment, historical, scientific, technical, theological, economic and, of course, philosophical, knowledge must be integrated. The delicate nature of this philosophical task is what makes the study of environmental ethics so essential to the contemporary curriculum. The aim of this course is to examine the kinds of ethical norms which emerge from such an amalgam of knowledge.

Teaching Strategies: Lectures and discussion will stress, and above all encourage, the integration of diverse knowledge. It will also be important to examine the process of integration itself, for such meta-level questions must be addressed in philosophical discussions at this level.

Student Assignments: Students will be encouraged, and ultimately expected, to draw from and eventually synthesize information from the range of disciplines mentioned above, and to justify their synthesis.

Student Evaluations: As part of the student's written and oral work, the quality of interdisciplinary integration will contribute to all grades in this class.

7. Demonstrate the to make informed, intelligent value decisions

Emphasis: Significant

Course Content: This course addresses the very question of what it means to make informed and intelligent value decisions. Such decisions will be addressed on the applied level (e.g., "Is it ethical to burn PCB wastes in sparsely populated areas.") and on the meta-level (e.g., "Do we who live today have an ethical obligation to future generations? For that matter, what is an ethical obligation?").

Teaching Strategies: Class discussions, and to a lesser extent the lectures, will be used to emphasize the nature and importance of informed value decisions. It is essential in a course of this nature to walk a fine line between discouraging the formation of value judgements based solely on intuition and possibly alienating the students by pointing out flaws in their intuitive arguments. Class discussion should never be used for a "TV talk show-type" opinion forum, where any one opinion is as good as any other. The discussions should be used to encourage the critical analysis of our ethical intuitions. It is in this way that we can build informed value judgements.

Student Assignments: Class assignments -- the position paper, paper proposal and presentation, as well as homework/discussion questions -- will require the student to gather information to support their arguments for or against certain value decisions, and thus address this objective directly.

Student Evaluations: Everyone is entitled to their ethical opinions, but all opinions will be graded on the extent to which they are well-supported arguments, that is, informed and intelligent value judgements.

8. Demonstrate the ability to make informed, sensitive aesthetic judgements

Emphasis: Some

Course Content: This objective is addressed tangentially. It is often noted that a goal of environmental ethics is the regulation of behavior in the environment so that its beauty may be preserved. It is also noted, quite to the contrary, that it is this grafting of human values (i.e., beauty) onto nature which often leads to environmental problems. The ability to make such aesthetic judgements will not be stressed, but their role in environmental ethics will be addressed.

Teaching Strategies: This issue will be addressed as needed in lectures and discussions.

Student Assignments: Unless a student chooses to examine aesthetics and ethics in the environment as a specific topic, aesthetics will be addressed only tangentially in student assignments.

Student Evaluations: Students will not be evaluated on the basis of this objective unless their position paper topic deals specifically with issues of an aesthetic nature.

9. Demonstrate the ability to function responsibly in one's natural, social and political environment

Emphasis: Significant

Course Content: This course addresses the very question of what it means to act responsibly by addressing the meta-question, "To what extent am I responsible for the present and future consequences of my actions, with respect to the environment?." Human actions affect the environment, and since the human beings also depend upon the environment for their survival, such ethical decisions often have social, political and economic consequences.

Teaching Strategies: Lectures and discussions will focus on the ethical question of what it really means to act responsibly in the environment.

Student Assignments: The position paper will address this aim directly. Students will have to take an ethical stand on a particular environmental issue -- the incineration of PCB wastes, use of nuclear power, etc. The question put to them is essentially, "What constitutes responsible behavior in your case?" Do we incinerate PCB wastes, and if not, what do we do with them? What are the ethical dimensions of this behavior? Finally, they must answer the question, "When you speak of responsibility, to whom and what are you responsible?" Does ethical responsibility in the environment extend to every living creature, future generation, all human beings? If so, why? This aim lies at the heart of any ethics class, and is especially important that the student assignments reflect that in this class.

Student Evaluations: This is really the heart of the content of student work in this class. Evaluations will be based on the quality of their arguments justifying the norms by which "responsibility" is defined. In short, students will be evaluated on the extent to which they understand the consequences, natural social and political, of ethical decisions.

IX. Background: The instructor for this course should have a strong background in philosophy and an understanding of the complexities of environmental issues from scientific or technical, and socio-economic perspectives. Experience in either ethics or environmental science/technology is desirable.

X. Class Size: Since this class will function at optimal pedagogical efficiency by combining discussion and "open" lectures, the maximum class size should be 25.

Upper-level interdisciplinary classes are expected to integrate material from two or more of the "Perspectives" of the University Studies curriculum (see Section II). It became apparent to me that interactive multimedia, with its ability to represent connections between broadly diverse subject areas, would be an ideal tool to achieve the goals of this class. In addition, I faced the problem that, in spite of my attempts to limit the class size to less than 25 that there are presently not enough senior seminars to satisfy the demands of the student population, resulting in enrollments more often at 35 or higher. This is clearly not the optimal size for a seminar. Asynchronous techniques such as campus computer Bulletin Boards (called "conferences" on our campus) were initiated in order to facilitate interaction between students outside of class, thus carrying on a detail;ed kind of discussion of philosophical and scientific issues which, due to the unwieldy logistics of the class size, would be impossible otherwise. In the sections that follow, each computer-assisted technique serves the objectives of the class as described above, keeping in mind that course content always drives computer application, not vice versa.

3.0 Asynchronous techniques

In a culture where more and more college student are of the non-traditional variety, i.e. non-residential, part-time, adult learners, etc., instructors must become the ones who adapt in classroom situations, not the students. In an October 1995 study, a Drexel University reported that asynchronous teaching and learning techniques offered a viable solution to many of the problems faced in contemporary humanities seminars. They list the following as conclusions:

1. Students assume ownership of the discussion and are willing to interact with each other and question each other, participating in the online discussion 3-6 times per week;
2. Students were more willing to initiate their own studies (e.g. term paper topics) when discussing them with their peers online;
3. The relative anonymity of electronic communication allowed often shy students to "speak up," becoming, as it were, full participants in the class discussion. (Andriole, et al., 1995)

The passages below are but two examples taken from the online discussion from a recent version of my environmental ethics class.

Figure 1: The menu for "conf envethic," Fall 1996

MUSIC/SP Conferencing Facility. Subject: Discussion of environmental ethics

Show option: ALL (F5 flips option between NEW and ALL)
S Topic Last Changed Description
- -------- ---------- ----------
_ INTRO 1996/11/06 14:58 Welcome to Envethic
_ THEORY 1996/09/10 22:06 Discussion of various ethical theories
_ LOVCANAL 1996/09/10 22:07 Discussion of the Love Canal incident

_ GLOBWARM 1996/11/07 14:05 Global warming
_ WORLDVIE 1996/11/06 14:33 Discussion of western and ecological world views
_ SUSTDEV 1996/11/05 21:50 Discussion of sustainable development
_ ECOFEM 1996/11/04 14:09 Discussion of ecofeminism

|---> Selection options: V: View A: Append

Figure 2: Sample postings to "conf envethic"

"In Chapter 6, Sustainable Development and Deep Ecology, of the Engel & Engel book, it talked about humans and their misuse of the land. Am I understanding correctly that it shows humans as somewhat narrow-minded, in reference to "The Population Factor" at the bottom of page 91? It says that we have the priority over other inhabitants of Earth and that nature is only necessary if it can somehow benefit us. Do the authors mean humanity in general or the richer nations, because on page 93, it says that a "simple conclusion is that sustainable development of populations is a subject of importance in every country, and the greatest responsibility rests with the richest." Just curious as to what someone else might have gotten out of it..."

"I would like to dirrect this comment to XXXXXXXXXX, who commented on the chapter from the Engel & Engel book. I believe the author is in fact referrring to all human beings as being suppressive and not just rich nations. The author is saying that non-humans are only useful forhuman consumption. I would not venture as far as saying he agrees withthis belief. The author instead is explaining the views that society has lived by historically. I would also like to comment on the use of the word "carring capacity." I think it is interesting to see how society has defined this term. Society uses' the term to mean the amount of people the environment can support with out distrucing. In fact this term should include non-humans as well. The exact carrying capactity depends on both humans and non-humans."

Generally speaking, most students have neither the time nor expertise to formulate such detailed discussion while in class. This is not a derogatory remark in any way; rather, it is a simple statement of fact with respect to anyone's ability to digest new and difficult material and then comment upon it. In order to maintain the quality of the online discussion and in order to keep it "on topic," it is essential for the instructor to act as an online mentor. This means that the instructor does not actively participate in the online discussion, but rather posts the occasional provocative question to maintain the relevance of the discussion, acting, as it were, as the "invisible hand." Based upon the quality of the online discussions I have followed, and the subsequent translation of that discussion into term papers and exams, I must concur with the conclusion of the Drexel study. "Based on this study, it appears that the model of the mentored-seminar, an educational model that dates back to Socrates and Plato, has enormous flexibility and educational integrity in its online form." (Andriole, et al., p. 105)

4.0 Off-the-shelf multimedia and the 1992 Rio Summit

A casual glance at the course description above reveals the centrality of the interplay between scientific and policy-related issues in this class. I have incorporated an interactive policy simulation called "Balance of the Planet" (Copyright 1990, Chris Crawford) in an attempt to simulate the 1992 United Nations Earth Summit. This commercially available game is unique in that it allows the user to alter any of the hundreds of algebraic equations which determine the outcome. For example, when students are

faced with the problem of starvation, they are faced with a set of interrelated parameters such as the overall world population and the value of an individual's life. The students quickly arrive at the realization that "Balance of the Planet" is a model, no different, in principle, from any other scientific theory in that, qua model, it reflects the biases of the model builder. In this sense, the classroom exercise becomes an exercise in valuing, as students are faced with scientific parameters which must be estimated, and moral parameters which on the service do not lend themselves to qualitative analysis but, within the confines of a computer model, must be given numerical representation. Discussion of these issues is essentially dialectical, with the computer sitting in the background. The simulation aids the dialectical process, rather than replacing it. The figures below offer some glimpses of "Balance of the Planet."

Figure 3: Balance of the Planet

Figure 4: Balance of the Planet Results Screen

Figure 5: Causes and Effects of Starvation in Balance of the Planet

Figure 6: Formula Manipulation in Balance of the Planet

Each student is assigned a constituency to represent in a parliamentary role playing exercise pitting the interests of non-governmental organizations such as Greenpeace with governments such as Russia and Germany and industrial interests. IN this way, the classroom computer is more than a glorified television set -- it facilitates the understanding that ecological issues are multidimensional and complex (see, for example, Sterling, 1990).

5.0 Authorware and beyond

One of the consistently frustrating aspects of integrating computers into any class is the overall lack of availability of university-level software beyond business and science curricula. Macromedia's "Authorware" line of authoring platforms offers instructors a simple, object-oriented development platform. At the time of this writing, I am currently developing a tutorial for environmental ethics with the academic version of Authorware for Macintosh.

6.0 Conclusions

In order to be beneficial across the curriculum, applied ethics instructors must create an interactive learning environment. Computer assisted techniques can be useful in this sense. Allowing the students to alter parameters in policy simulators makes such classes ideal for fostering critical thinking. Thus, in spite of the obstacles which face contemporary humanities instructors, it is possible to maintain the essentially Socratic nature of such classes by adopting relatively simple computer-assisted approaches.

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